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Metallic phase in lightly doped La2-x-SrxCuO 4 observed by electron paramagnetic resonance

Shengelaya A., Bruun M., Kochelaev B., Safina A., Conder K., Müller K.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The metallic phase in low doping range of x from 0.01 to 0.06 in La 2-xSrxCuO4 was analyzed using narrow electron paramagnetic resonance (EPR) line. It was observed that this line was distinct from the known broad line and both lines were due to probing Mn2+ ions. The narrow lines occurred due to metallic regions in material and its intensity increased exponentially upon cooling below ~150 K. The results show that intensity of narrow EPR line follows same temperature dependence as in-plane resistivity anisotropy in lightly doped La2-xSr xCuO4 single crystals.

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